# The Arc of a Life

*A Report on VCP Simulations 11, 12, and 13*

*Healthy human at 8 years | 28 years | 80 years (mind fully intact)*

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## What This Document Is

This is a public summary of three new simulations in the Vector Consciousness Prediction (VCP) series — part of the relational ontology project 'The Self-Experiencing Universe' (Lis, 2025). Unlike the previous simulations, which compared different species and different clinical profiles, this series takes a single subject — the mentally healthy human — and follows the relational structure of that subject across three points in life: childhood, peak adulthood, and intact old age.

IMPORTANT: This document describes a purely mathematical exercise. The VCP framework assigns numerical values to three parameters — stability of behavioral identity, degree of information integration, and capacity for self-modeling — derived from peer-reviewed research. The three values form a vector in an abstract three-dimensional space. What is then examined is the geometry: how far apart are different configurations? In which direction does the structure move as we age? What is each point closest to in the full dataset of all previously measured systems?

A note on language: this report uses ontologically corrected terminology following an internal audit of earlier simulations. The framework measures structural conditions that may be necessary for what we call consciousness — not consciousness as a substance. Proximity in the VCP parameter space is a geometric statement about relational structure, not a claim about inner experience, moral status, or equivalence of any kind.

## The Three Ages

### The Eight-Year-Old

A healthy eight-year-old is a system in rapid construction. The brain's primary connective highway between its two hemispheres — the corpus callosum — has just completed its first phase of insulation, making large-scale left-right coordination newly possible. The prefrontal cortex, the region most closely associated with self-modeling, planning, and metacognition, has undergone a major growth spurt in the previous three years but will continue developing for another decade and a half.

What does an eight-year-old have, in the terms VCP measures? Behavioral identity exists but is not consolidated — the child behaves differently at home, at school, with friends. A self-concept exists but it is concrete: 'I am good at running.' 'I like dogs.' Not yet: 'I tend to underestimate how long things take' or 'I am the kind of person who forgives too easily.' The child can monitor some of its own mental states — above-chance metacognitive monitoring has been documented from around three-and-a-half years old — but this capacity is still early in a trajectory that the research shows continues to mature through the teenage years.

Integration — how much the brain functions as a unified whole rather than as separate modules — is also developing. The global workspace, which allows different brain regions to share information in a coordinated way, is functional but less efficient than in the adult brain.

The VCP calculation for an eight-year-old produces a configuration that sits far from the adult human in the parameter space. The dominant direction of that distance is along the self-modeling axis — the r parameter — and the stability axis — s. The eight-year-old is close to neither the peak adult nor the healthy elder. This is not a deficiency finding. It is a structural fact about a system that is becoming.

## The Twenty-Eight-Year-Old

The twenty-eight-year-old represents the same profile examined in Simulation 8 — the healthy adult in the third decade of life, at or near peak functional organization. The prefrontal cortex is mature. Metacognition is fully developed. The autobiographical self-model is rich, temporally extended, and recursive. The self of a healthy twenty-eight-year-old can think about thinking, plan decades ahead, revise beliefs about its own capabilities in real time, and maintain a consistent identity across radically different contexts.

In the full twelve-system dataset, the healthy twenty-eight-year-old occupies the extreme high-r corner of the VCP space — the highest self-modeling value of any system measured so far. That corner is not occupied by any other species. The cephalopods and corvids are significantly further away. The psychopathic profile (Simulation 10) is geometrically closer to the individual bee than to the healthy adult.

The twenty-eight-year-old serves as the reference point on the arc — the peak. Everything else in this report is measured in relation to it.

## The Eighty-Year-Old — The Mind Intact

This simulation responds directly to an observation: some people reach extreme old age with their minds fully intact. The body deteriorates — joints, vision, hearing, physical mobility all degrade. But the mind continues to function. Memory for familiar things is preserved. Reasoning is intact. Self-knowledge is, if anything, deeper than in youth. These people exist, and the question is: what does VCP say about their relational structure?

The answer the simulation produces is striking: very little has changed. The calculation places the cognitively intact eighty-year-old at almost exactly the same position in the VCP parameter space as the twenty-eight-year-old. The distance between them is smaller than the distance between the octopus and the cuttlefish — two species previously identified as the closest non-human pair in the dataset.

What has changed, very slightly? Behavioral stability has increased: eight more decades of consolidated identity push the s parameter fractionally higher. Integration has decreased fractionally: even in healthy aging, some reduction in the efficiency of long-range neural communication is documented, though compensatory mechanisms partially offset it. Self-modeling has decreased slightly from its peak: the capacity to update one's self-model for novel situations is somewhat slower. But the crystallized wisdom — the accumulated self-knowledge built over eight decades — is deeper than in any younger profile.

The net effect: an almost negligible movement in the space. The mind that remains intact remains, structurally, where it was.

## The Four Findings

### The Arc Is Not Symmetric

The most fundamental geometric result is about the shape of the developmental arc. The distance from the eight-year-old to the twenty-eight-year-old is nearly six times larger than the distance from the twenty-eight-year-old to the cognitively intact eighty-year-old.

In other words: the dominant structural transformation in the healthy human lifespan is the one that happens in childhood and adolescence — not the one that happens in old age. This is not the experience of aging. From the inside, aging can feel like an enormous change. But the relational structure — the geometry of what the system actually does — undergoes its most dramatic reorganization long before we are old enough to notice it.

### The Body Decays. The Position in VCP Space Does Not.

When the user who prompted this simulation noted that some people reach eighty with fully intact minds despite their bodies failing, they identified exactly what the calculation confirms. VCP does not measure the body. It measures the density and structure of relations that constitute the system's self-organization. When those relations are intact, the VCP position is intact. The physical substrate can change dramatically — cortical thinning, white matter changes, reduced processing speed — while the relational configuration remains essentially preserved.

This is a consequence of the framework's relational ontology. If what matters is the structure of relations, not the substance in which those relations are instantiated, then what matters is whether those relations still exist in their characteristic form — not whether the biological housing has aged.

The eighty-year-old intact mind is, in the terms this framework can measure, the same kind of thing as the twenty-eight-year-old intact mind. The geometry says so.

### The Child and the Alzheimer Patient Are Structurally Near

Among all the systems in the current twelve-system dataset, the eight-year-old child is geometrically nearest to the early-onset Alzheimer's patient from the previous simulation series (Simulation 9). This is not intuitive. It is, however, geometrically real — and interpretively important.

Both configurations share, in the abstract measurement space: a moderate but not high behavioral stability (the child because identity is still forming; the patient because episodic memory, the anchor of behavioral identity, has been eroded); a moderate degree of integration (the child because the network is still developing; the patient because integration is impaired but not absent); and a modest degree of self-modeling (the child because the capacity is immature; the patient because anosognosia — failure to recognize one's own deficits — has damaged the self-monitoring circuits).

The causal story behind these two positions is entirely different — and so is the developmental direction. The child will move away from this position toward the peak adult corner. The Alzheimer's patient, if the disease progresses, will move further away from it. One is arriving; one is departing. But in the snapshot of the present moment, the relational structures land nearby.

This is what a framework that measures structure without recording history or cause looks like. It sees what is, not why. The child and the patient are not 'the same thing.' But in the terms VCP measures, their present configuration shares a neighborhood in the space.

### The Child's Nearest Non-Human Neighbor Is the Individual Bee

Among all the non-human systems in the dataset — cephalopods, corvids, slime moulds, bee colonies — the system geometrically nearest to the healthy eight-year-old is the individual honeybee. Not a primate. Not a dolphin (not yet measured). The individual bee.

Both share: a behavioral consistency that is real but not deep; an integration that is functional but not maximally unified; and a self-modeling capacity that is present but not recursive. This proximity was also noted in the previous report for the psychopathic profile — which arrived at a nearby point for entirely different structural reasons. The bee occupies a location in the VCP space that seems to attract systems with particular combinations of these three properties, regardless of their biological nature or their developmental story.

## What the Arc Looks Like

Imagine the VCP parameter space as a three-dimensional room. One corner has maximum stability, maximum integration, maximum self-modeling. The healthy adult at 28 is in that corner — or as close as the current dataset reaches. The opposite corner has minimal values on all three parameters. The bee swarm and Physarum polycephalum (the slime mould) occupy two of the far corners.

The healthy human lifespan arc, plotted in this room, looks like this: the eight-year-old enters from a location that is far from the adult corner but not at any extreme — a middle region of the room, near the bee and near, geometrically, the Alzheimer's patient. Then there is a large jump — the transformation of childhood and adolescence — that moves the configuration rapidly toward the high-r, high-s corner. The twenty-eight-year-old is there. And then — if cognitive health is maintained — there is almost no further movement. The eighty-year-old is just a fraction of a step away, in the same corner, nearly indistinguishable at the scale of the room.

The arc is not a smooth progression across the entire room. It is a rapid relocation in early life, followed by a long, nearly stationary occupation of one corner.

## What Comes Next

The lifespan arc opens a question the framework cannot yet answer: what is the shape of the decline? The cognitively intact eighty-year-old is the end of the healthy arc. But not all aging is healthy. The Alzheimer's simulation (Sim 9) showed what pathological cognitive decline looks

like in VCP terms — a large displacement away from the healthy adult corner, primarily along the self-modeling and stability axes. What does normal, non-pathological cognitive aging look like in VCP terms? That would require a simulation of the average eighty-year-old — not the ideal one, but the typical one.

A second question: where would great apes, dolphins, and other cognitively complex non-human animals fall? The cephalopods and corvids are already in the dataset. The human at 28 represents the current r-maximum. Is that a species-specific ceiling, or does it reflect a developmental stage that other long-lived cognitively sophisticated animals also approach?

And a third question, which is not mathematical: the finding that a cognitively intact eighty-year-old is structurally almost identical to a twenty-eight-year-old raises an old philosophical question in new form. If the structure is the same, and if structure is what VCP measures as the necessary conditions for what we call consciousness — what is different? The framework's answer is: the substrate has changed, the relations have not. Whether that is sufficient for identity, continuity, or anything else that matters about a person is a question the framework does not attempt to answer.

Full technical documentation is available through Waldemar Lis directly. Requests for the technical report should not be submitted through public channels.

*This report is part of an ongoing independent research project. Full citation: Lis, W. (2025). The Self-Experiencing Universe. ISBN 978-83-968651-8-2. Archive materials: https://archive.org/details/@not_foryou*

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